

Application No. 09/286,183

AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 3, 5-9, 11, 14-16, 19, 27 and 30 and cancel claim 13 as follows:

1. (Currently Amended) A method for processing a speech signal comprising the steps of:
- receiving a speech signal to be processed;
 - dividing said speech signal into multiple frames;
 - analyzing a frame generated in said dividing step to determine a spoken sound type associated with said frame; and
 - modifying a sound parameter of at least one of said frame and another frame based on said spoken sound type.
2. (Original) The method claimed in claim 1, wherein:
- said step of analyzing includes performing a spectral analysis on said frame to determine a spectral content of said frame.
3. (Currently Amended) The method claimed in claim 2, wherein:
- said step of analyzing includes examining said spectral content of said frame to determine whether said frame includes a voiced or unvoiced spoken sound.
4. (Original) The method claimed in claim 1, wherein:
- said step of analyzing includes determining an amplitude of said frame and comparing said amplitude of said frame to an amplitude of a previous frame to determine whether said frame includes a plosive sound.
5. (Currently Amended) The method claimed in claim 1, wherein:
- said step of modifying at least one of said frame and another frame includes changing an amplitude of said frame when said frame is determined to include a first spoken sound

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type.

6. (Currently Amended) The method claimed in claim 5, wherein:
said step of modifying at least one of said frame and another frame includes boosting
an amplitude of said frame when said frame is determined to include an unvoiced plosive.

7. (Currently Amended) The method claimed in claim 1, wherein:
said step of modifying at least one of said frame and another frame includes changing
a parameter associated with said frame in a manner that enhances intelligibility of an output
signal.

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8. (Currently Amended) The method claimed in claim 1, wherein further
~~comprising the step of:~~
said step of modifying at least one of said frame and another frame based on said
spoken sound type comprises modifying said frame and said another frame determined in said
step of analyzing.

9. (Currently Amended) The method claimed in claim 8, wherein:
said step of modifying said frame and said another frame includes reducing an
amplitude of a previous frame when said spoken sound type is an unvoiced plosive.

10. (Original) A computer readable medium having program instructions stored
thereon for implementing the method of claim 1 when executed within a digital processing
device.

11. (Currently Amended) A method for processing a speech signal comprising the
steps of:

providing a speech signal that is divided into time-based frames;

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analyzing each of said frames in the context of surrounding frames to determine a spoken sound type associated with said frame; and
adjusting an amplitude of selected frames based on a result of said step of analyzing.

12. (Original) The method of claim 11, wherein:
said step of adjusting includes adjusting the amplitude of a frame in a manner that enhances intelligibility of an output signal.

13. (Cancelled)

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14. (Currently Amended) The method of claim ~~11~~¹³, wherein:
said step of adjusting includes increasing the amplitude of ~~a~~said first frame when said spoken sound type associated with said first frame includes an unvoiced plosive.

15. (Currently Amended) The method of claim ~~11~~¹³, wherein:
said step of adjusting includes increasing the amplitude of ~~a~~said first frame when said spoken sound type associated with said first frame includes an unvoiced fricative.

16. (Currently Amended) The method of claim ~~11~~¹³, wherein:
said step of adjusting includes decreasing the amplitude of a second frame that is previous to said first frame when said spoken sound type associated with said first frame includes a voiced or unvoiced plosive.

17. (Original) The method of claim 11, wherein:
said step of analyzing includes comparing an amplitude of a first frame to an amplitude of a frame previous to said first frame.

18. (Original) A computer readable medium having program instructions stored

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thereon for implementing the method claimed in claim 11 when executed in a digital processing device.

19. (Currently Amended) A system for processing a speech signal comprising:
means for receiving a speech signal that is divided into time-based frames;
means for determining a spoken sound type associated with each of said frames; and
means for modifying a sound parameter of selected frames based on spoken sound type to enhance signal intelligibility.

20. (Original) The system claimed in claim 19, wherein:
said system is implemented within a linear predictive coding (LPC) encoder.

21. (Original) The system claimed in claim 19, wherein:
said system is implemented within a code excited linear prediction (CELP) encoder.

22. (Original) The system claimed in claim 19, wherein:
said system is implemented within a linear predictive coding (LPC) decoder.

23. (Original) The system claimed in claim 19, wherein:
said system is implemented within a code excited linear prediction (CELP) decoder.

24. (Original) The system claimed in claim 19, wherein:
said means for determining includes means for performing a spectral analysis on a frame.

25. (Original) The system claimed in claim 19, wherein:
said means for determining includes means for comparing amplitudes of adjacent frames.

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26. (Original) The system claimed in claim 19, wherein:
said means for determining includes means for ascertaining whether a frame includes a voiced or unvoiced sound.

27. (Currently Amended) The system claimed in claim 19, wherein:
said means for modifying includes means for boosting the amplitude of a frame that includes a spoken sound type that is typically less intelligible than other sound types.

28. (Original) The system claimed in claim 19, wherein:
said means for modifying includes means for boosting the amplitude of a frame that includes an unvoiced plosive.

29. (Original) The system claimed in claim 19, wherein:
said means for modifying includes means for reducing the amplitude of a frame that precedes a frame that includes an unvoiced plosive.

30. (Currently Amended) The system claimed in claim 19, wherein:
said means for determining a spoken sound type includes means for determining whether a frame includes at least one of the following: a vowel sound, a voiced fricative, an unvoiced fricative, a voiced plosive, and an unvoiced plosive.